



#13 Appeal Brief
Srew 1-7-04
Patent Docket
7242-103/10209858

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Mecherle et al.

Serial No.: 09/434,913

Filed: November 5, 1999

For: PORTABLE LASER TRANSCEIVER

Group Art Unit: 2633

Examiner: Bello, Agustin

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APPELLANTS' BRIEF

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REAL PARTY IN INTEREST

The real party in interest is fSona Communications Corporation.

RELATED APPEALS

None.

STATUS OF CLAIMS

Claims 1-40 have been submitted for examination in the present application.

Claims 1-3, 7-9, 27-29, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,416,627 to Wilmoth.

Claims 4, 6, 30, and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,416,627 to Wilmoth in view of U.S. Patent No. 6,381,054 to Okayasu.

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Claims 10-12 and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,416,627 to Wilmoth in view of U.S. Patent No. 4,054,794 to Laughlin.

Claims 21 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,969,860 to Mearns.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,969,860 to Mearns in view of U.S. Patent No. 4,054,794 to Laughlin.

Claims 5, 13-20, 23-25, 31, and 35-40 stand objected to as being dependent from a rejected base claim. The Examiner noted that these claims would be allowable if rewritten in independent form.

STATUS OF AMENDMENTS

Concurrent with this Appeal, Applicants have filed an Amendment After Final which amends the claims to reflect the requirements set forth in the Final Office Action of February 12, 2003 and places the claims not under appeal in a form suitable for allowance.

SUMMARY OF INVENTION

The invention relates to a portable transceiver which can receive optical signals using a minimum of a single Mangin mirror. In its simplest form, the receive portion of the portable transceiver comprises an aperture, a Mangin mirror in line with the aperture, a photodiode at the focal point of the Mangin mirror, and an output from the photodiode. The operability of such a portable transceiver depends upon the Mangin mirror directing incoming signal toward the photodiode disposed the focal point of the Mangin mirror. No additional optical elements are required.

The advantage of such a portable transceiver lies within the simplicity of its optics. Since only the single optical element, i.e., the Mangin mirror, is needed for full functionality, no alignment of multiple optical elements is necessary. Further, when

employing only the single optical element, the overall size and weight of the transceiver may be reduced.

ISSUES

Has a *prima facie* case been established for a finding of obviousness of claims 21 and 26 based on the Means reference in view of the knowledge of one skilled in the art?

Has a *prima facie* case been established for a finding of obviousness of claim 22 based on the Mearns reference in view of the Laughlin reference?

GROUPING OF THE CLAIMS

Claims 21, 22, and 26 constitute a single group regarding the grounds of obviousness which is primarily based upon the Mearns reference. Claim 26, being rejected on the same grounds as claim 21, stands or falls with claim 21. Further, for the reasons stated below, claim 22 also stands or falls with claim 21.

ARGUMENT

I. THE OBVIOUSNESS REJECTION

Claim 21 was rejected as obvious over U.S. Patent No. 5,969,860 to Mearns in view of the knowledge of one skilled in the art. The combination of Mearns in view of the knowledge of one skilled in the art fails to teach or suggest all limitations recited in claim 21. As such, a *prima facie* case of obviousness has not been established over claim 21.

A. The Mearns Reference

Mearns teaches a telescope in which multiple optical elements are required to achieve the dual-field optical system that is at the heart of the '860 patent. At minimum, the optical system of Mearns requires an objective portion, which forms and intermediate image, and a relay portion, which transfers the intermediate image to a focal plane of the optical system. Col. 1, ll. 16-19.

The objective portion of the optical system includes three optical elements. A primary mirror and secondary mirror are arranged to form a Cassegrain system. Col. 1,

II. 20-22. Referring to Figs. 1 and 2, the primary mirror is either the primary mirror A or the alternative primary mirror A¹. The secondary mirror is the secondary mirror D. The alternative primary mirror A¹ is movable in an axial direction between the positions shown in Figs. 1 and 2. When the alternative primary mirror A¹ is in the position shown in Fig. 1, the primary mirror A provides a wide field of view. When the alternative primary mirror A¹ is in the position shown in Fig. 2, the alternative primary mirror A¹ provides a narrower field of view.

The relay portion of the optical system includes two optical elements. Two facing mirrors E, F transfer the intermediate image received from the objective portion of the optical system to the focal plane 12. Col. 2, II. 1-4. The first mirror F is depicted in Figs. 1 and 2 as a concave reflector, while the second mirror E is depicted as a planar reflector. Further, the second mirror E is described as a Mangin mirror and is provided to correct for unwanted chromatic aberration. Col. 2, II. 6-11.

B. The Rejections

In rejecting claim 21 under 35 U.S.C. § 103(a) through the application of Mearns in view of the knowledge of one skilled in the art, the rejection asserts that the Mearns reference teaches an optical system comprising an aperture, a Mangin mirror in line with the aperture, and a detector system at the focal point of the Mangin mirror. The rejection further asserts that the detector system at the focal point of the Mangin mirror is inherently a photodetector, that photodiodes are known to those skilled in the art as a type of photodetector, and that photodiodes inherently have an electrical output.

In rejecting claim 22 under 35 U.S.C. § 103(a) through the application of Mearns in view of Laughlin, the rejection asserts the teachings of Mearns as stated above in combination with the teachings of Laughlin. Specifically, the rejection asserts that Laughlin teaches a preamplifier and an automatic gain control used in an optical system. Thus, the rejection asserts, the Mearns in view of Laughlin teaches a preamplifier and an automatic gain control coupled to the output of the photodiode.

Importantly, the rejection does not rely on the teachings of Laughlin to establish any of the limitations found in claim 21, the independent claim from which claim 22 depends. It is on this basis that claim 22 stands or falls with claim 21.

C. The Standard For Obviousness

Regarding obviousness rejections under 35 U.S.C. § 103(a), MPEP § 2142 sets forth the requirements for establishing a *prima facie* case of obviousness:

2142 Legal Concept of *Prima Facie* Obviousness

ESTABLISHING A *PRIMA FACIE* CASE OF
OBVIOUSNESS

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Within the context of the rejections at issue in the present application, all claim limitations of claim 12 must be taught or suggested by the Mearns reference to establish a *prima facie* case of obviousness.

D. Mearns Does Not Teach All Limitations Of Claim 21

The portable transceiver of claim 21 includes two limitations that are not taught by Mearns. The first limitation Mearns does not teach is the Mangin mirror having a focal point; the second limitation not taught is the photodiode being disposed at the focal point of the Mangin mirror.

The Examiner's obviousness rejection of claim 21 includes the erroneous assertion that Mearns teaches a Mangin mirror having a focal point. See Office Action, p. 7, Feb. 12, 2003. An examination of Figs. 1 and 2 of Mearns and the accompanying description relating to the Mangin mirror reveals that Mearns teaches a *planar* Mangin mirror which *inherently has no focal point*. Broadly, Mearns teaches an optical system having an aperture in line with an objective portion and a relay portion. The relay portion of the optical system includes the Mangin mirror, illustrated in Figs. 1 and 2 as a planar mirror. In contrast, mirrored surfaces A, A¹, and F are illustrated as curved (non-planar) surfaces in Figs. 1 and 2. In the written description, the only teaching Mearns gives relating to the Mangin mirror is that its purpose is "to provide correction for unwanted chromatic aberration" Col. 2, ll. 8-9. Such a description does not teach any form of the Mangin mirror other than the planar mirrored surface depicted in the drawings. Contrasting this description of the Mangin mirror with that of the mirrored surfaces A and A¹, the latter two are described as forming a Cassegrain system, a description which establishes the mirrored surfaces A and A¹ as curved surfaces. Nowhere does Mearns so much as imply that the Mangin mirror may be a curved surface. Instead, Mearns only expressly teaches that the Mangin mirror is a planar surface. Like all other planar reflective surfaces, the planar Mangin Mirror taught by Mearns inherently lacks a focal point. While Mearns teaches that the overall optical system has a focal point, the system focal point is not inherently identical to the focal point of the optical elements which are components of the optical system. Thus, because Mearns fails to teach the

limitation of a Mangin mirror having a focal point, a *prima facie* case of obviousness has not been established.

Mearns also does not expressly teach a detector system nor where such a detector system should be disposed. The Examiner asserts in the most recent Office Action that "since the system of Mearns is a receiver of optical signals, the detector G of the system inherently comprises a photo detector for the detection of the optical signals" and that photodiodes are well known in the art for detecting optical signals. Office Action, p. 7, Feb. 12, 2003. The only focal point expressly taught in Mearns is the focal point of the optical system as a whole. Therefore, in making the above assertion, the Examiner appears to assume that a photo diode added to the optical system of Mearns at the focal plane 12 (shown in Figs. 1 and 2) would be disposed at the focal point of the Mangin mirror. Such an assumption, however, is entirely incorrect.

While Mearns may inherently teach a photo diode disposed at the focal plane 12, it does not inherently teach any spatial relationship between the photodiode and the Mangin mirror. Claim 21 establishes the spatial relationship between the photodiode and the Mangin mirror by reciting "a photodiode at the focal point of the Mangin mirror". The language of claim 21 is clear, placing the photodiode at the focal point of the Mangin mirror. This limitation is not met by the teachings of Mearns because Mearns teaches only a spatial relationship between the optical system as a whole and the photodiode. Mearns does not teach any spatial relationship between the photodiode and any individual element of the optical system, let alone the Mangin mirror.

Further, assuming, *arguendo*, that the Mangin mirror has a focal point separate from the focal point of the system, Mearns does not implicitly establish where such a focal point should lie in relation to the photodiode. The focal point of any single component of an optical system *does not* inherently lie within the focal point of the optical system. Therefore, the focal point of the Mangin mirror, if one existed, could lie anywhere outside the focal plane 12 of the optical system. In sum, Mearns contains no

teachings regarding the spatial relationship between the Mangin mirror and the photodiode. Thus, because Mearns fails to teach all limitations of claim 21, a *prima facie* case of obviousness has not been established.

CONCLUSION

A *prima facie* case of obviousness cannot be supported by the prior art reference to Mearns, whether in view of the knowledge of one skilled in the art (for claims 21 and 26) or in view of Laughlin (for claim 22). Recited limitations of the claims are not taught by the cited prior art references. Reversal of the rejections is earnestly solicited.

Respectfully submitted,

FULBRIGHT & JAWORSKI L.L.P.

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APPENDIX

The following claims are at issue in the present appeal:

21. A portable transceiver of one or more signals, comprising
an aperture;
a Mangin mirror in line with the aperture;
a photodiode at the focal point of the Mangin mirror;
an output from the photodiode.

22. The portable transceiver of claim 21 further comprising
a preamplifier coupled with the photodiode;
an automatic gain control coupled with the preamplifier and with the output.

26. The portable transceiver of claim 21, the Mangin mirror having an f-number of about 0.67.